

Porcelain Surge Arrester 3EP

Powerful Range of Products

Power Transmission and Distribution

SIEMENS

One Goal –
Four Different Designs

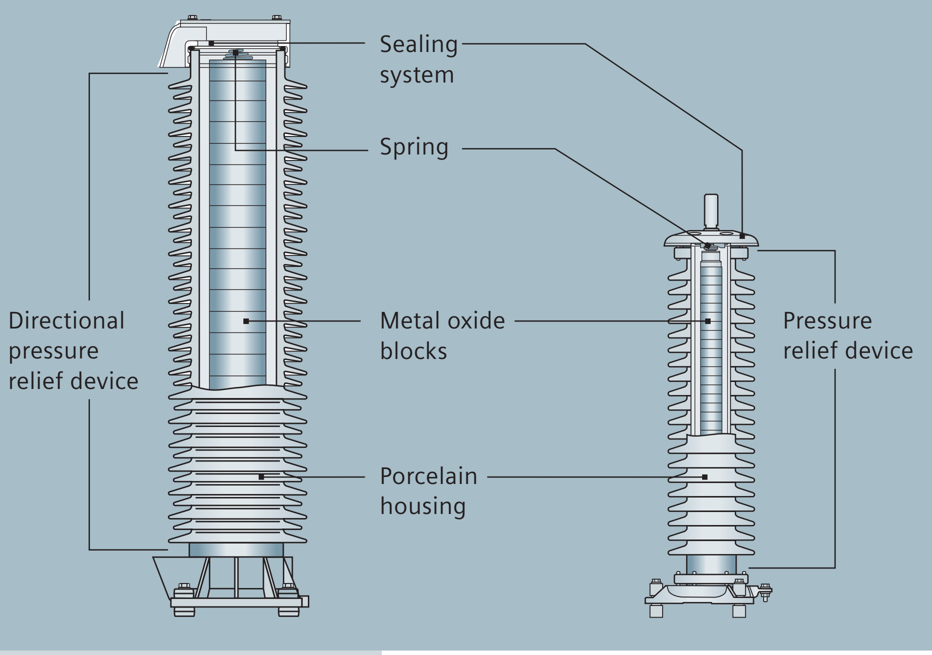
3EP porcelain housed surge arresters
Experience is most essential, when it comes to reliability in Medium and High Voltage applications. Since 1929 Siemens have been manufacturing High Voltage surge arresters with porcelain housing – for standard and specialized applications. Our permanent research and development and the concerted know how in our factory give our 3EP surge arresters a leading edge in over voltage protection. The cost-effectiveness of our products is underscored by uncompromising quality ensuring the long service life and reliability of each application. In general, our arresters are used to protect high voltage equipment in substations, e. g. transformers, High Voltage Direct Current (HVDC) systems or all kinds of compensation systems for electric power networks. However, apart from the area of standard applications, Siemens can offer customized surge arresters for virtually any application (see diagram 1) from 12 kV up to 800 kV.

Furthermore, our surge arresters have been designed to meet the requirements of a wide range of common installation environments, from arctic cold climate to the heat of the desert and the dampness of tropical climates.

Advantages of 3EP surge arresters

- Excellent over voltage protection with large worldwide experience
- Very high bending moment of up to 34,000 Nm
- For Networks with short circuit currents of up to 100 kA
- Brown or grey porcelain designs
- Maximum protection in case of overload through directional pressure relief device
- Due to the excellent sealing system we have decades of trouble-free service life without failures or ingress of moistures

The following tables show a selection of our 3EP standard porcelain surge arresters. For other options/specifications just contact us or your nearest Siemens partner. We can supply arresters with higher rated voltages and continuous operating voltages, with higher or lower residual voltages, with longer or smaller creepage distances. Basically we can procure the 3EP4 up to rated voltage of 288 kV adequate for networks up to 362 kV, the 3EP2 up to 468 kV adequate for networks up to 550 kV and the 3EP3 up to 612 kV adequate for networks up to 800 kV.



Choose the Appropriate Arrester

In just four steps you can choose the right surge arrester.

1. First step choose the type 3EP5, 3EP4, 3EP2 or 3EP3 from diagram 1.
2. Second step verify the maximum technical data with table 1.
3. Third step choose the surge arrester with table 2.
4. Fourth step select the suitable installation and grounding and complete the order number with table 3.

To find the right arrester just follow the color codes

3EP5
3EP4
3EP2
3EP3

Diagram 1

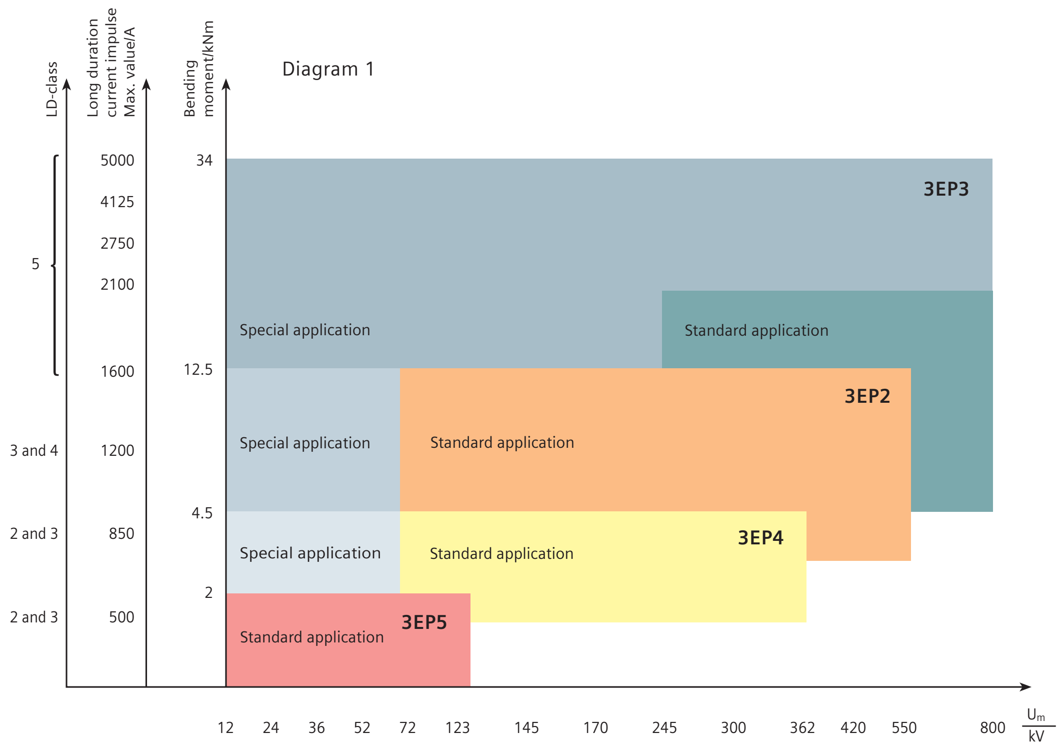


Table 1

Maximum values		3EP5	3EP4	3EP2	3EP3
Nominal system voltage U_n	kV	110	345	500	765
Highest voltage for equipment U_m	kV	123	362	550	800
Maximum rated voltage U_r	kV	96	288	462	624
Maximum nominal discharge current I_n	kA	10	10	20	20
Maximum line discharge class		3	3	5	5
Maximum energy absorption capability	kJ / kVr	8	8	13	25
Maximum long duration current impulse	A	850	850	1600	5000
Rated short-circuit current	kA	40	65	65	100
Maximum permissible service load	kNm	2	4.5	12.5	34

Table 2

Highest voltage for equipment	Standard lightning impulse withstand voltage	Rated voltage	Continuous operating voltage	Line discharge class	Long duration current 2 ms	Maximum values of the residual voltages at discharge currents of the following impulses						Arrester type
U_m [kV]	BIL min [kV]	U_r [kV]	U_c [kV]	LD-Cl	[A]	8/20 µs 5 kA [kV]	8/20 µs 10 kA [kV]	8/20 µs 20 kA [kV]	30/60 µs 0.5 kA [kV]	30/60 µs 1 kA [kV]	30/60 µs 2 kA [kV]	
12	60	10	8	2	500	24.6	26.5	29.7	20.4	21.2	22.3	3EP5 010 - 1 P C 2 1 - 1 xxx
	60	10	8	3	850	24.9	26.5	29.4	21.2	21.7	22.3	3EP5 010 - 2 P C 3 1 - 1 xxx
	60	12	9	2	500	29.6	31.8	35.6	24.5	25.4	26.7	3EP5 012 - 1 P C 2 1 - 1 xxx
	60	12	9	3	850	29.9	31.8	35.3	25.4	26.1	26.7	3EP5 012 - 2 P C 3 1 - 1 xxx
	75	15	12	2	500	37.0	39.8	41.4	30.6	31.8	33.4	3EP5 015 - 1 P C 2 1 - 1 xxx
	75	15	12	3	850	37.4	39.8	41.5	31.8	32.6	34.2	3EP5 015 - 2 P C 3 1 - 1 xxx
24	95	21	16	2	500	51.8	55.7	62.4	42.9	44.6	46.8	3EP5 021 - 1 P C 2 1 - 1 xxx
	95	21	16	3	850	52.4	55.7	61.8	44.6	45.7	46.8	3EP5 021 - 2 P C 3 1 - 1 xxx
	95	24	19	2	500	59.1	63.6	71.2	49.0	50.9	53.4	3EP5 024 - 1 P C 2 1 - 1 xxx
	95	24	19	3	850	59.8	63.6	70.6	50.9	52.2	53.4	3EP5 024 - 2 P C 3 1 - 1 xxx
	125	30	24	2	500	73.9	79.5	82.8	61.2	63.6	66.8	3EP5 030 - 1 P C 2 1 - 1 xxx
	125	30	24	3	850	74.7	79.5	82.9	63.6	65.2	68.4	3EP5 030 - 2 P C 3 1 - 1 xxx
36	145	30	24	2	500	73.9	79.5	89.0	61.2	63.6	66.8	3EP5 030 - 1 P E 2 1 - 1 xxx
	145	30	24	3	850	74.7	79.5	88.2	63.6	65.2	66.8	3EP5 030 - 2 P E 3 1 - 1 xxx
	145	36	28	2	500	88.7	95.4	107	73.5	76.3	80.1	3EP5 036 - 1 P E 2 1 - 1 xxx
	145	36	28	3	850	89.7	95.4	106	76.3	78.2	80.1	3EP5 036 - 2 P E 3 1 - 1 xxx
	170	45	36	2	500	111	119	124	91.9	95.4	100.2	3EP5 045 - 1 P E 2 1 - 1 xxx
	170	45	36	3	850	112	119	124	95.4	97.8	100.2	3EP5 045 - 2 P E 3 1 - 1 xxx
52	250	42	33	2	500	104	111	125	85.7	89.0	93.5	3EP5 042 - 1 P E 2 1 - 1 xxx
	250	42	33	3	850	94.8	101	112	80.6	82.7	84.7	3EP5 042 - 2 P E 3 1 - 1 xxx
	250	66	52	2	500	163	175	196	135	140	147	3EP5 066 - 1 P H 2 1 - 1 xxx
	250	66	52	3	850	149	158	176	127	130	133	3EP5 066 - 2 P H 3 1 - 1 xxx
Neutral-ground arresters U_m [kV]												
52	250	21	16	2	500	51.8	55.7	62.4	42.9	44.6	46.8	3EP5 021 - 1 S C 2 1 - 1 xxx
	250	21	16	3	850	47.4	50.4	55.9	40.3	41.3	42.3	3EP5 021 - 2 S C 3 1 - 1 xxx
72.5	325	54	43	2	500	133	143	160	110	115	120	3EP5 054 - 1 P H 2 1 - 1 xxx
	325	54	43	2	500	133	143	160	110	115	120	3EP4 054 - 1 P D 2 1 - 1 xxx
	325	54	43	3	850	122	130	144	104	106	112	3EP5 054 - 2 P H 3 1 - 1 xxx
	325	54	43	3	850	122	130	144	104	106	112	3EP4 054 - 2 P D 3 1 - 1 xxx
	325	60	48	2	500	148	159	178	122	127	134	3EP5 060 - 1 P H 2 1 - 1 xxx
	325	60	48	2	500	148	159	178	122	127	134	3EP4 060 - 1 P D 2 1 - 1 xxx
	325	60	48	2	850	130	138	153	110	113	119	3EP4 060 - 2 P D 2 1 - 1 xxx
	325	60	48	2	850	130	138	153	110	113	119	3EP2 060 - 2 P D 2 1 - 1 xxx
	325	60	48	3	850	135	144	160	115	118	124	3EP5 060 - 2 P H 3 1 - 1 xxx
	325	60	48	3	850	135	144	160	115	118	124	3EP4 060 - 2 P D 3 1 - 1 xxx
	325	60	48	3	850	135	144	160	115	118	124	3EP2 060 - 2 P D 3 1 - 1 xxx
	325	66	52	2	500	163	175	196	135	140	147	3EP5 066 - 1 P H 2 1 - 1 xxx
	325	66	52	2	500	163	175	196	135	140	147	3EP4 066 - 1 P D 2 1 - 1 xxx
	325	66	52	2	850	143	152	169	121	125	131	3EP4 066 - 2 P D 2 1 - 1 xxx
	325	66	52	2	850	143	152	169	121	125	131	3EP2 066 - 2 P D 2 1 - 1 xxx
	325	66	52	3	850	149	158	176	127	130	136	3EP5 066 - 2 P H 3 1 - 1 xxx
	325	66	52	3	850	149	158	176	127	130	136	3EP4 066 - 2 P D 3 1 - 1 xxx
	325	66	52	3	850	149	158	176	127	130	136	3EP2 066 - 2 P D 3 1 - 1 xxx
	325	72	57	2	500	177	191	214	147	153	160	3EP5 072 - 1 P H 2 1 - 1 xxx
	325	72	57	2	500	177	191	214	147	153	160	3EP4 072 - 1 P D 2 1 - 1 xxx
	325	72	57	3	850	162	173	192	138	142	149	3EP5 072 - 2 P H 3 1 - 1 xxx
	325	72	57	3	850	162	173	192	138	142	149	3EP4 072 - 2 P D 3 1 - 1 xxx
Neutral-ground arresters U_m [kV]												
72.5	325	30	24	2	500	73.9	79.5	89.0	61.2	63.6	66.8	3EP5 030 - 1 S E 2 1 - 1 xxx
	325	30	24	2	500	73.9	79.5	89.0	61.2	63.6	66.8	3EP4 030 - 1 S C 2 1 - 1 xxx
	325	30	24	3	850	67.7	72.0	79.9	57.6	59.0	61.9	3EP5 030 - 2 S E 3 1 - 1 xxx
	325	30	24	3	850	67.7	72.0	79.9	57.6	59.0	61.9	3EP4 030 - 2 S C 3 1 - 1 xxx

1) According to IEC 60099-4 these values are measured on individual housing unit

Height [H]	Number of units	Housing insulation		Creepage distance	Top load dynamic	Alternating or normal sheds	Grading ring diameter [D]	Weight	Figure	TOV Diagram
		Lightning impulse withstand voltage 1.2/50 µs[1)	Power frequency withstand voltage 1 min., wet[1)							
[mm]		[kV]	[kV]	[mm]	[N]		[mm]	[kg]		
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	18	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	18	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	18	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	18	51	3
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	19	51	3
566	1	266	114	1260	350	N	-	26	51	3
566	1	266	114	1260	350	N	-	27	51	3
566	1	266	114	1260	350	N	-	26	51	3
566	1	266	114	1260	350	N	-	27	51	3
566	1	266	114	1260	350	N	-	26	51	3
566	1	266	114	1260	350	N	-	28	51	3
566	1	266	114	1260	350	N	-	26	51	3
566	1	266	114	1260	350	N	-	28	51	3
764	1	375	160	1871	260	N	-	34	51	3
764	1	375	160	1871	260	N	-	37	51	2
368	1	157	67	648	540	N	-	17	51	3
368	1	157	67	648	540	N	-	18	51	3
764	1	375	160	1871	260	N	-	34	51	3
1050	1	484	196	2490	4280	N	-	44	41	3
764	1	375	160	1871	260	N	-	36	51	3
1050	1	484	196	2490	4280	N	-	44	41	3
764	1	375	160	1871	260	N	-	34	51	3
1050	1	484	196	2490	4280	N	-	44	41	3
1050	1	484	196	2490	4280	N	-	44	41	3
1235	1	574	218	2595	10120	N	-	74	21	3
764	1	375	160	1871	260	N	-	37	51	3
1050	1	484	196	2490	4280	N	-	44	41	3
1235	1	574	218	2595	10120	N	-	74	21	3
764	1	375	160	1871	260	N	-	34	51	3
1050	1	484	196	2490	4280	N	-	45	41	3
1050	1	484	196	2490	4280	N	-	45	41	3
1235	1	574	218	2595	10120	N	-	75	21	3
764	1	375	160	1871	260	N	-	37	51	3
1050	1	484	196	2490	4280	N	-	45	41	3
1235	1	574	218	2595	10120	N	-	75	21	3
764	1	375	160	1871	260	N	-	34	51	3
1050	1	484	196	2490	4280	N	-	45	41	3
764	1	375	160	1871	260	N	-	37	51	3
1050	1	484	196	2490	4280	N	-	45	41	3
566	1	266	160	1260	350	N	-	26	51	3
555	1	206	83	980	8100	N	-	24	41	3
566	1	266	160	1260	350	N	-	26	51	3
555	1	206	83	980	8100	N	-	24	41	3

Highest voltage for equipment	Standard lightning impulse withstand voltage	Rated voltage	Continuous operating voltage	Line discharge class	Long duration current 2 ms	Maximum values of the residual voltages at discharge currents of the following impulses						Arrester type
U_m [kV]	BIL min [kV]	U_r [kV]	U_c [kV]	LD-Cl	[A]	8/20 µs 5 kA [kV]	8/20 µs 10 kA [kV]	8/20 µs 20 kA [kV]	30/60 µs 0.5 kA [kV]	30/60 µs 1 kA [kV]	30/60 µs 2 kA [kV]	
123	450	96	76	2	500	237	254	285	196	204	214	3EP5 096 - 1 P J 2 1 - 1 xxx
	450	96	76	2	500	237	254	285	196	204	214	3EP4 096 - 1 P E 2 1 - 1 xxx
	450	96	76	2	850	208	221	245	177	181	190	3EP4 096 - 2 P E 2 1 - 1 xxx
	450	96	76	2	850	208	221	245	177	181	190	3EP2 096 - 2 P F 2 1 - 1 xxx
	450	96	76	3	850	217	230	256	184	189	198	3EP5 096 - 2 P J 3 1 - 1 xxx
	450	96	76	3	850	217	230	256	184	189	198	3EP4 096 - 2 P E 3 1 - 1 xxx
	450	96	76	3	850	217	230	256	184	189	198	3EP2 096 - 2 P F 3 1 - 1 xxx
	450	102	81	2	500	251	270	303	208	216	227	3EP4 102 - 1 P E 2 1 - 1 xxx
	450	102	81	3	850	230	245	272	196	201	211	3EP4 102 - 2 P E 3 1 - 1 xxx
	450	108	86	2	500	266	286	321	220	229	240	3EP4 108 - 1 P E 2 1 - 1 xxx
	450	108	86	3	850	244	259	288	207	213	223	3EP4 108 - 2 P E 3 1 - 1 xxx
	450	111	88	3	850	250	266	296	213	218	229	3EP4 111 - 2 P E 3 1 - 1 xxx
Resonant earthed	550	156	124	2	850	337	359	398	287	294	309	3EP4 156 - 2 P F 2 1 - 1 xxx
Neutral-ground arresters U_m [kV]												
123	450	51	40	2	500	126	135	151	104	108	114	3EP5 051 - 1 S H 2 1 - 1 xxx
Resonant earthed	550	90	72	3	850	203	216	240	173	177	186	3EP5 090 - 2 S J 3 1 - 1 xxx
	550	90	72	2	850	195	207	230	166	170	178	3EP4 090 - 2 S D 2 1 - 1 xxx
	550	96	76	3	850	217	230	256	184	189	198	3EP5 096 - 2 S J 3 1 - 1 xxx
	550	96	76	2	850	208	221	245	177	181	190	3EP4 096 - 2 S E 2 1 - 1 xxx
145	550	111	88	2	500	274	294	330	227	235	247	3EP4 111 - 1 P E 2 1 - 1 xxx
	550	111	88	2	850	240	255	283	204	209	220	3EP4 111 - 2 P E 2 1 - 1 xxx
	550	111	88	2	850	240	255	283	204	209	220	3EP2 111 - 2 P D 2 1 - 2 xxx
	550	111	88	3	850	250	266	296	213	218	229	3EP4 111 - 2 P E 3 1 - 1 xxx
	550	111	88	3	850	250	266	296	213	218	229	3EP2 111 - 2 P G 3 1 - 2 xxx
	550	120	96	2	500	296	318	356	245	254	267	3EP4 120 - 1 P F 2 1 - 1 xxx
	550	120	96	2	850	259	276	306	221	226	237	3EP2 120 - 2 P G 2 1 - 2 xxx
	550	120	96	3	850	271	288	320	230	236	248	3EP4 120 - 2 P F 3 1 - 1 xxx
	550	120	96	3	850	271	288	320	230	236	248	3EP2 120 - 2 P G 3 1 - 2 xxx
	550	126	100	3	850	284	302	336	242	248	260	3EP4 126 - 2 P F 3 1 - 1 xxx
	550	132	105	3	850	298	317	352	253	260	272	3EP4 132 - 2 P F 3 1 - 1 xxx
	550	144	115	2	850	311	331	368	265	272	285	3EP4 144 - 2 P F 2 1 - 1 xxx
	550	144	115	3	850	325	346	384	277	283	297	3EP4 144 - 2 P F 3 1 - 1 xxx
Neutral-ground arresters U_m [kV]												
U_m [kV]	550	60	48	2	500	148	159	178	122	127	134	3EP5 060 - 1 S H 2 1 - 1 xxx
145	550	60	48	2	500	148	159	178	122	127	134	3EP4 060 - 1 S D 2 1 - 1 xxx
170	650	138	110	2	500	340	366	410	282	293	307	3EP4 138 - 1 P D 2 2 - 1 xxx
	650	138	110	2	850	298	317	352	254	260	273	3EP4 138 - 2 P D 2 2 - 1 xxx
	650	138	110	2	850	298	317	352	254	260	273	3EP2 138 - 2 P D 2 2 - 1 xxx
	650	138	110	3	850	311	331	368	265	272	285	3EP4 138 - 2 P D 3 2 - 1 xxx
	650	138	110	3	850	311	331	368	265	272	285	3EP2 138 - 2 P D 3 2 - 1 xxx
	650	144	115	2	500	355	382	427	294	305	321	3EP4 144 - 1 P D 2 2 - 1 xxx
	650	144	115	2	850	311	331	368	265	272	285	3EP2 144 - 2 P D 2 2 - 1 xxx
	650	144	115	3	850	325	346	384	277	283	297	3EP4 144 - 2 P D 3 2 - 1 xxx
	650	144	115	3	850	325	346	384	277	283	297	3EP2 144 - 2 P D 3 2 - 1 xxx
	650	144	115	3	850	325	346	384	277	283	297	3EP4 144 - 2 P D 3 2 - 1 xxx
	650	150	120	3	850	338	360	400	288	295	310	3EP4 150 - 2 P D 3 2 - 1 xxx
Neutral-ground arresters U_m [kV]												
170	650	69	55	2	500	170	183	205	141	146	154	3EP5 069 - 1 S H 2 1 - 1 xxx
	650	69	55	2	500	170	183	205	141	146	154	3EP4 069 - 1 S D 2 1 - 1 xxx

1) According to IEC 60099-4 these values are measured on individual housing unit

Height [H]	Number of units	Housing insulation		Creepage distance	Top load dynamic	Alternating or normal sheds	Grading ring diameter [D]	Weight	Figure	TOV Diagram
[mm]		Lightning impulse withstand voltage 1.2/50 µs[1] [kV]	Power frequency withstand voltage 1 min., wet[1] [kV]	[mm|	[N]		[mm]	[kg]		
896	1	448	191	2279	220	N	-	40	51	2
1315	1	658	267	3405	3420	N	-	60	41	2
1315	1	658	267	3405	3420	N	-	60	41	3
1465	1	708	488	3190	8530	N	-	88	21	3
896	1	448	191	2279	220	N	-	44	51	3
1315	1	658	267	3405	3420	N	-	60	41	2
1465	1	708	488	3190	8530	N	-	88	21	2
1315	1	658	267	3405	3420	N	-	60	41	2
1315	1	658	267	3405	3420	N	-	60	41	2
1315	1	658	267	3405	3420	N	-	60	41	2
1315	1	658	267	3405	3420	N	-	60	41	2
1315	1	658	267	3405	3420	N	-	69	41	2
1460	1	722	293	3835	3080	N	-	75	41	2
764	1	375	160	1871	220	N	-	34	51	2
896	1	448	191	2279	220	N	-	44	51	2
1050	1	484	196	2490	4300	N	-	50	41	3
896	1	448	191	2279	220	N	-	44	51	2
1315	1	658	267	3405	3420	N	-	60	41	3
1315	1	658	267	3835	3080	N	-	66	41	2
1315	1	658	267	3835	3080	N	-	69	41	3
1235	1	574	218	4035	7710	A	-	82	21	3
1315	1	658	267	3835	3080	N	-	70	41	2
1235	1	574	218	4035	7710	A	-	83	21	2
1460	1	722	293	3835	3080	N	-	67	41	2
1620	1	798	303	4035	7710	A	-	84	21	3
1460	1	722	293	3835	3080	N	-	71	41	2
1620	1	798	303	4035	7710	A	-	84	21	2
1460	1	722	293	3835	3080	N	-	72	41	2
1460	1	722	293	3835	3080	N	-	73	41	2
1460	1	722	293	3835	3080	N	-	74	41	3
1460	1	722	293	3835	3080	N	-	74	41	2
764	1	375	160	1871	150	N	-	34	51	2
1050	1	484	196	2490	4280	N	-	44	41	2
2100	2	968	392	4980	2140	N	800	96	42	2
2100	2	968	392	4980	2140	N	800	96	42	3
2470	2	1148	436	5190	5060	N	800	154	22	3
2100	2	968	392	4980	2140	N	800	96	42	2
2470	2	1148	436	5190	5060	N	800	154	22	2
2100	2	968	392	4980	2140	N	800	96	42	2
2470	2	1148	436	5190	5060	N	800	154	22	3
2100	2	968	392	4980	2140	N	800	96	42	2
2470	2	1148	436	5190	5060	N	800	154	22	2
2100	2	968	392	4980	2140	N	800	96	42	2
2100	2	968	392	4980	2140	N	800	96	42	2
764	1	375	160	1871	100	N	-	34	51	2
1050	1	484	196	2490	4280	N	-	45	41	2

Highest voltage for equipment	Standard lightning impulse withstand voltage	Rated voltage	Continuous operating voltage	Line discharge class	Long duration current 2 ms	Maximum values of the residual voltages at discharge currents of the following impulses						Arrester type
U_m [kV]	BIL min [kV]	U_r [kV]	U_c [kV]	LD-Cl	[A]	8/20 µs 5 kA [kV]	8/20 µs 10 kA [kV]	8/20 µs 20 kA [kV]	30/60 µs 0.5 kA [kV]	30/60 µs 1 kA [kV]	30/60 µs 2 kA [kV]	
245	850	192	153	2	500	473	509	570	392	407	427	3EP4 192 - 1 P E 2 2 - 1 xxx
	850	192	153	2	850	415	442	490	353	362	380	3EP4 192 - 2 P E 2 2 - 1 xxx
	850	192	153	3	850	433	461	512	369	378	396	3EP4 192 - 2 P E 3 2 - 1 xxx
	850	192	153	3	850	433	461	512	369	378	396	3EP2 192 - 2 P F 3 2 - 1 xxx
	850	192	153	4	1200	424	451	496	366	375	393	3EP2 192 - 3 P F 4 2 - 1 xxx
	850	192	153	4	1200	424	451	496	366	375	393	3EP3 192 - 3 P H 4 2 - 2 xxx
	850	198	158	2	500	488	525	588	404	420	441	3EP4 198 - 1 P E 2 2 - 1 xxx
	850	198	158	2	850	428	455	506	364	373	392	3EP4 198 - 2 P E 2 2 - 1 xxx
	850	198	158	3	850	447	475	528	380	390	409	3EP4 198 - 2 P E 3 2 - 1 xxx
	850	198	158	3	850	447	475	528	380	390	409	3EP2 198 - 2 P F 3 2 - 1 xxx
	850	198	158	4	1200	437	465	512	377	386	405	3EP2 198 - 3 P F 4 2 - 1 xxx
	850	198	158	4	1200	437	465	512	377	386	405	3EP3 198 - 3 P H 4 2 - 2 xxx
	850	228	182	3	850	514	547	607	438	449	471	3EP4 228 - 2 P E 3 2 - 1 xxx
	850	228	182	3	850	514	547	607	438	449	471	3EP2 228 - 2 P F 3 2 - 1 xxx
Neutral-ground arresters U_m [kV]												
245	850	102	81	2	500	251	270	303	208	216	227	3EP4 102 - 1 S D 2 1 - 1 xxx

Highest voltage for equipment	Standard lightning impulse withstand voltage	Rated voltage	Continuous operating voltage	Line discharge class	Long duration current 2 ms	Maximum values of the residual voltages at discharge currents of the following impulses						Arrester type
U_m [kV]	BIL min [kV]	U_r [kV]	U_c [kV]	LD-Cl	[A]	8/20 µs 5 kA [kV]	8/20 µs 10 kA [kV]	8/20 µs 20 kA [kV]	30/60 µs 0.5 kA [kV]	30/60 µs 1 kA [kV]	30/60 µs 2 kA [kV]	
300	850	228	182	2	500	562	604	677	465	483	508	3EP4 228 - 1 P F 2 2 - 1 xxx
	850	228	182	2	850	493	524	582	420	430	451	3EP4 228 - 2 P F 2 2 - 1 xxx
	850	228	182	3	850	514	547	607	438	449	471	3EP4 228 - 2 P F 3 2 - 1 xxx
	850	228	182	3	850	514	547	607	438	449	471	3EP2 228 - 2 P G 3 2 - 2 xxx
	850	228	182	4	1200	504	536	589	434	445	466	3EP2 228 - 3 P G 4 2 - 2 xxx
	850	228	182	4	1200	504	536	589	434	445	466	3EP3 228 - 3 P H 4 2 - 2 xxx
	950	240	192	2	500	592	636	712	490	509	534	3EP4 240 - 1 P F 2 2 - 1 xxx
	850	240	192	2	850	519	552	613	442	453	475	3EP4 240 - 2 P F 2 2 - 1 xxx
	850	240	192	3	850	541	576	639	461	472	495	3EP4 240 - 2 P F 3 2 - 1 xxx
	850	240	192	3	850	541	576	639	461	472	495	3EP2 240 - 2 P G 3 2 - 2 xxx
	850	240	192	4	1200	530	564	620	457	468	491	3EP2 240 - 3 P G 4 2 - 2 xxx
	850	240	192	4	1200	530	564	620	457	468	491	3EP3 240 - 3 P H 4 2 - 2 xxx
Neutral-ground arresters U_m [kV]												
300	850	120	96	2	500	296	318	356	245	254	267	3EP4 120 - 1 S F 2 1 - 1 xxx
362	950	276	220	3	850	623	662	735	530	543	570	3EP2 276 - 2 P F 3 3 - 1 xxx
	950	276	220	4	1200	610	649	714	525	538	564	3EP2 276 - 3 P F 4 3 - 1 xxx
	950	276	220	4	1200	610	649	714	525	538	564	3EP3 276 - 3 P H 4 2 - 2 xxx
	1050	288	230	3	850	650	691	767	553	567	594	3EP2 288 - 2 P F 3 3 - 1 xxx
	1050	288	230	4	1200	636	677	745	548	562	589	3EP2 288 - 3 P F 4 3 - 1 xxx
	1050	288	230	4	1200	636	677	745	548	562	589	3EP3 288 - 3 P H 4 2 - 2 xxx
	1175	360	288	2	850	812	864	959	691	709	743	3EP2 360 - 2 P F 2 3 - 1 xxx
Neutral-ground arresters U_m [kV]												
362	950	147	117	2	500	362	390	436	300	312	327	3EP4 147 - 1 S F 2 1 - 1 xxx

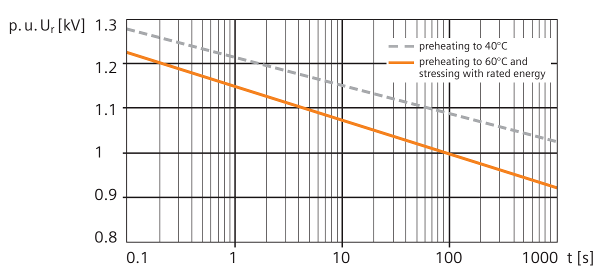
1) According to IEC 60099-4 these values are measured on individual housing unit

Height [H]	Number of units	Housing insulation		Creepage distance	Top load dynamic	Alternating or normal sheds	Grading ring diameter [D]	Weight	Figure	TOV Diagram
		Lightning impulse withstand voltage 1.2/50 µs 1)	Power frequency withstand voltage 1 min., wet 1)							
[mm]		[kV]	[kV]	[mm]	[N]		[mm]	[kg]		
2630	2	1316	534	6810	1710	N	800	132	42	2
2630	2	1316	534	6810	1710	N	800	132	42	3
2630	2	1316	534	6810	1710	N	800	132	42	2
2930	2	1415	537	6380	4260	N	1000	191	22	2
2930	2	1415	537	6380	4260	N	1000	191	22	2
3280	2	1542	585	9350	10360	A	1200	455	32	2
2630	2	1316	534	6810	1710	N	800	132	42	2
2630	2	1316	534	6810	1710	N	800	132	42	3
2630	2	1316	534	6810	1710	N	800	132	42	2
2930	2	1415	537	6380	4260	N	1000	191	22	2
2930	2	1415	537	6380	4260	N	1000	191	22	2
3280	2	1542	585	9350	10360	A	1200	456	32	2
2630	2	1316	534	6810	1710	N	1000	148	42	2
2930	2	1415	537	6380	4260	N	1000	278	22	2
1050	1	484	184	2490	4280	N	-	52	41	2

Height [H]	Number of units	Housing insulation		Creepage distance	Top load dynamic	Alternating or normal sheds	Grading ring diameter [D]	Weight	Figure	TOV Diagram
		Lightning impulse withstand voltage 1.2/50 µs 1)	Switching impulse withstand voltage (SIL) 1)							
[mm]		[kV]	[kV]	[mm]	[N]		[mm]	[kg]		
2920	2	1444	996	7670	1540	N	1000	148	42	2
2920	2	1444	996	7670	1540	N	1000	148	42	3
2920	2	1444	996	7670	1540	N	1000	148	42	2
3240	2	1595	1100	8070	3850	A	1000	278	22	2
3240	2	1595	1100	8070	3850	A	1000	278	22	2
3280	2	1542	1064	9350	10360	A	1200	472	32	2
2920	2	1444	996	7670	1540	N	1000	149	22	2
2920	2	1444	996	7670	1540	N	1000	149	22	3
2920	2	1444	996	7670	1540	N	1000	149	42	2
3240	2	1595	1100	8070	3850	A	1000	280	22	2
3240	2	1595	1100	8070	3850	A	1000	280	22	2
3280	2	1542	1064	9350	10360	A	1200	474	32	2
1460	1	722	498	3835	3080	N	-	62	41	2
4395	3	2123	1464	9570	2840	N	1800	277	23	2
4395	3	2123	1464	9570	2840	N	1800	291	23	2
3280	2	1542	1064	9350	10360	A	1200	482	32	2
4395	3	2123	1464	9570	2840	N	1800	277	23	2
4395	3	2123	1464	9570	2840	N	1800	294	23	2
3280	2	1542	1064	9350	10360	A	1200	484	32	2
4395	3	2123	1464	9570	2840	N	1800	443	23	3
1460	1	722	498	3835	3080	N	-	97	41	2

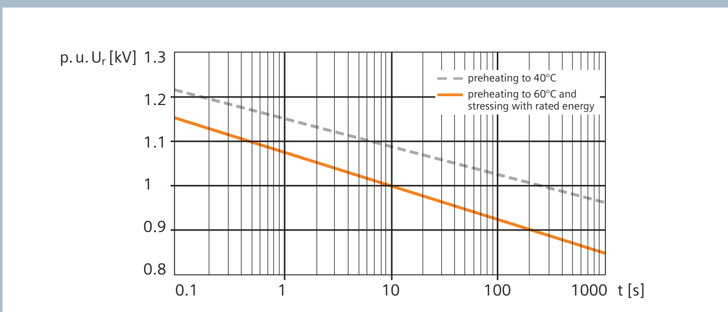
Highest voltage for equipment	Standard lightning impulse withstand voltage	Rated voltage	Continuous operating voltage	Line discharge class	Long duration current 2 ms	Maximum values of the residual voltages at discharge currents of the following impulses						Arrester type
U_m [kV]	BIL min [kV]	U_r [kV]	U_c [kV]	LD-Cl	[A]	8/20 µs 5 kA [kV]	8/20 µs 10 kA [kV]	8/20 µs 20 kA [kV]	30/60 µs 0.5 kA [kV]	30/60 µs 1 kA [kV]	30/60 µs 2 kA [kV]	
420	1175	336	268	3	850	758	806	895	645	661	694	3EP2 336 - 2 P D 3 4 - 2 xxx
	1175	336	268	4	1200	742	790	869	640	655	687	3EP2 336 - 3 P D 4 4 - 2 xxx
	1175	336	268	5	1600	734	773	842	634	657	680	3EP2 336 - 4 P D 5 4 - 2 xxx
	1175	336	268	4	1200	742	790	869	640	655	687	3EP3 336 - 3 P K 4 2 - 2 xxx
	1175	336	268	5	1600	734	773	691	634	657	680	3EP3 336 - 4 P K 5 2 - 2 xxx
	1300	360	288	3	850	812	864	959	691	709	743	3EP2 360 - 2 P D 3 4 - 2 xxx
	1300	360	288	4	1200	795	846	931	685	702	736	3EP2 360 - 3 P D 4 4 - 2 xxx
	1175	360	288	5	1600	787	828	740	679	704	729	3EP2 360 - 4 P D 5 4 - 2 xxx
	1300	360	288	4	1200	795	846	931	685	702	736	3EP3 360 - 3 P K 4 2 - 2 xxx
	1175	360	288	5	1600	787	828	740	679	704	729	3EP3 360 - 4 P K 5 2 - 2 xxx
Neutral-ground arresters U_m [kV]												
420	1175	168	134	3	850	379	403	448	323	331	347	3EP2 168 - 2 S G 3 1 - 1 xxx
550	1425	396	316	4	1200	875	931	1024	754	772	810	3EP3 396 - 3 P H 4 3 - 2 xxx
	1300	396	316	5	1600	865	911	993	747	774	802	3EP3 396 - 4 P H 5 3 - 2 xxx
	1300	396	316	5	2100	839	883	954	742	760	786	3EP3 396 - 5 P H 5 3 - 2 xxx
	1425	399	319	4	1200	881	938	1032	760	778	816	3EP3 399 - 3 P H 4 3 - 2 xxx
	1300	399	319	5	1600	872	918	1000	753	780	808	3EP3 399 - 4 P H 5 3 - 2 xxx
	1300	399	319	5	2100	845	890	961	747	765	792	3EP3 399 - 5 P H 5 3 - 2 xxx
	1425	420	336	4	1200	928	987	1086	800	819	859	3EP3 420 - 3 P H 4 3 - 2 xxx
	1425	420	336	5	1600	918	966	1053	792	821	850	3EP3 420 - 4 P H 5 3 - 2 xxx
	1425	420	336	5	2100	890	937	1012	787	806	834	3EP3 420 - 5 P H 5 3 - 2 xxx
	1550	444	355	5	1600	970	1021	1113	837	868	899	3EP3 444 - 4 P H 5 3 - 2 xxx
	1425	444	355	5	2100	941	990	1069	832	852	881	3EP3 444 - 5 P H 5 3 - 2 xxx
800	1800	570	456	5	2100	1208	1271	1373	1068	1093	1131	3EP3 570 - 5 P K 5 4 - 2 xxx
	1950	588	470	5	2100	1246	1311	1416	1101	1128	1167	3EP3 588 - 5 P K 5 4 - 2 xxx
	1950	597	477	5	2100	1265	1331	1438	1118	1145	1185	3EP3 597 - 5 P K 5 4 - 2 xxx
	1950	612	489	5	2100	1297	1365	1474	1146	1174	1215	3EP3 612 - 5 P K 5 4 - 2 xxx

1) According to IEC 60099-4 these values are measured on individual housing unit



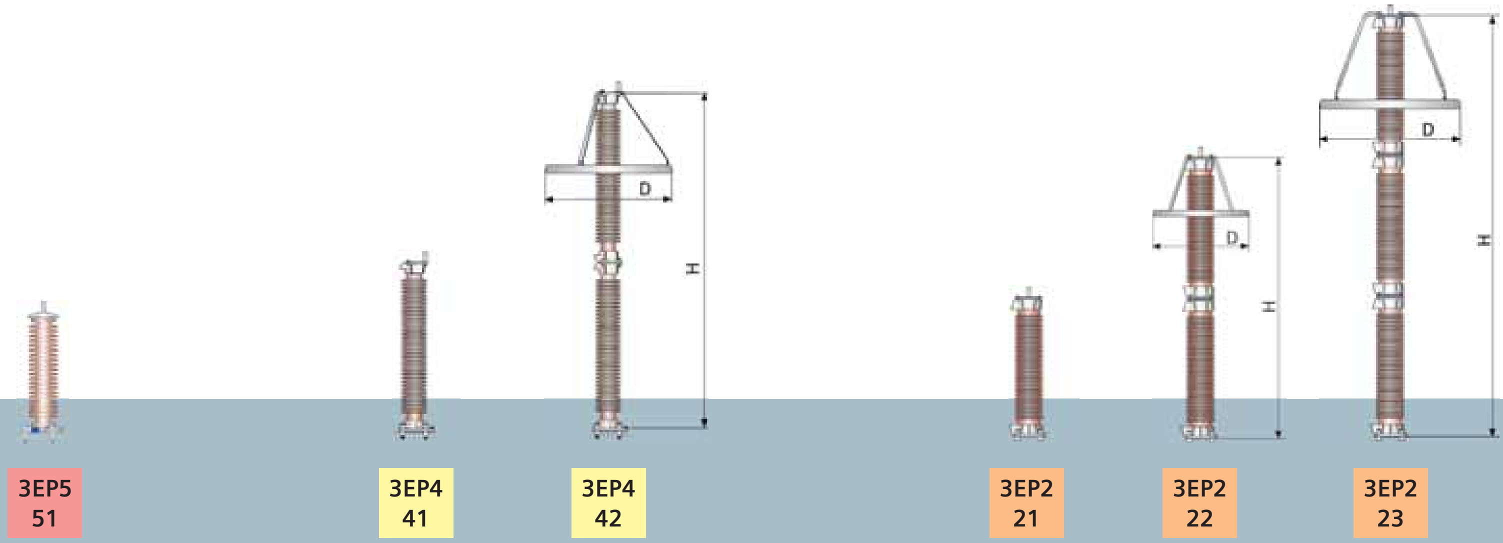
Temporary Over Voltage (TOV) diagram 2

Height [H]	Number of units	Housing insulation		Creepage distance	Top load dynamic	Alternating or normal sheds	Grading ring diameter [D]	Weight	Figure	TOV Diagram
		Lightning impulse withstand voltage 1.2/50 µs[1)	Switching impulse withstand voltage (SIL)[1)							
[mm]		[kV]	[kV]	[mm]	[N]		[mm]	[kg]		
4940	4	2297	1584	11740	2530	A	1800	402	24	2
4940	4	2297	1584	11740	2530	A	1800	419	24	2
4940	4	2297	1584	11740	2530	A	1800	438	24	2
3740	2	1810	1248	11030	9090	A	1200	551	32	2
3740	2	1810	1248	11030	9090	A	1200	568	32	2
4940	4	2297	1584	11740	2530	A	1800	405	24	2
4940	4	2297	1584	11740	2530	A	1800	427	24	2
4940	4	2297	1584	11740	2530	A	1800	443	24	2
3740	2	1810	1248	11030	9090	A	1200	557	32	2
3740	2	1810	1248	11030	9090	A	1200	575	32	2
1620	1	798	550	3605	7710	N	-	109	21	2
4920	3	2313	1596	14025	6910	A	1800	703	33	2
4920	3	2313	1596	14025	6910	A	1800	724	33	2
4920	3	2313	1596	14025	6910	A	1800	785	33	2
4920	3	2313	1596	14025	6910	A	1800	706	33	2
4920	3	2313	1596	14025	6910	A	1800	724	33	2
4920	3	2313	1596	14025	6910	A	1800	785	33	2
4920	3	2313	1596	14025	6910	A	1800	709	33	2
4920	3	2313	1596	14025	6910	A	1800	731	33	2
4920	3	2313	1596	14025	6910	A	1800	791	33	2
4920	3	2313	1596	14025	6910	A	1800	735	33	2
4920	3	2313	1596	14025	6910	A	1800	803	33	2
7480	4	3620	2496	22060	4540	A	2650	1185	34	2
7480	4	3620	2496	22060	4540	A	2650	1193	34	2
7480	4	3620	2496	22060	4540	A	2650	1193	34	2
7480	4	3620	2496	22060	4540	A	2650	1201	34	2

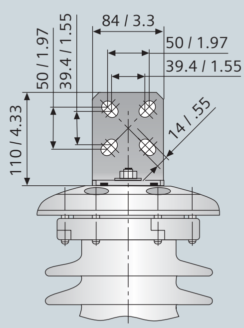


Temporary Over Voltage (TOV) diagram 3

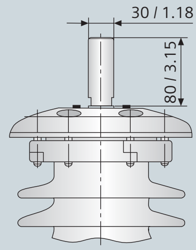
Housings



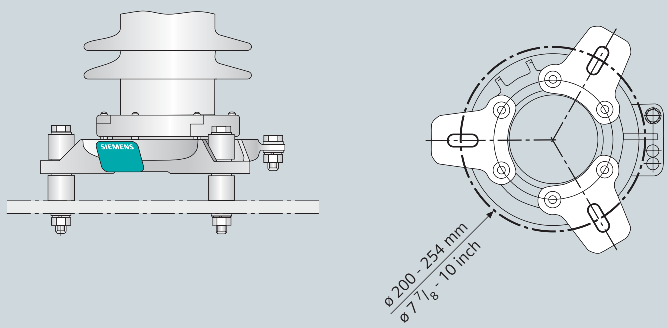
Installation and Grounding 3EP5



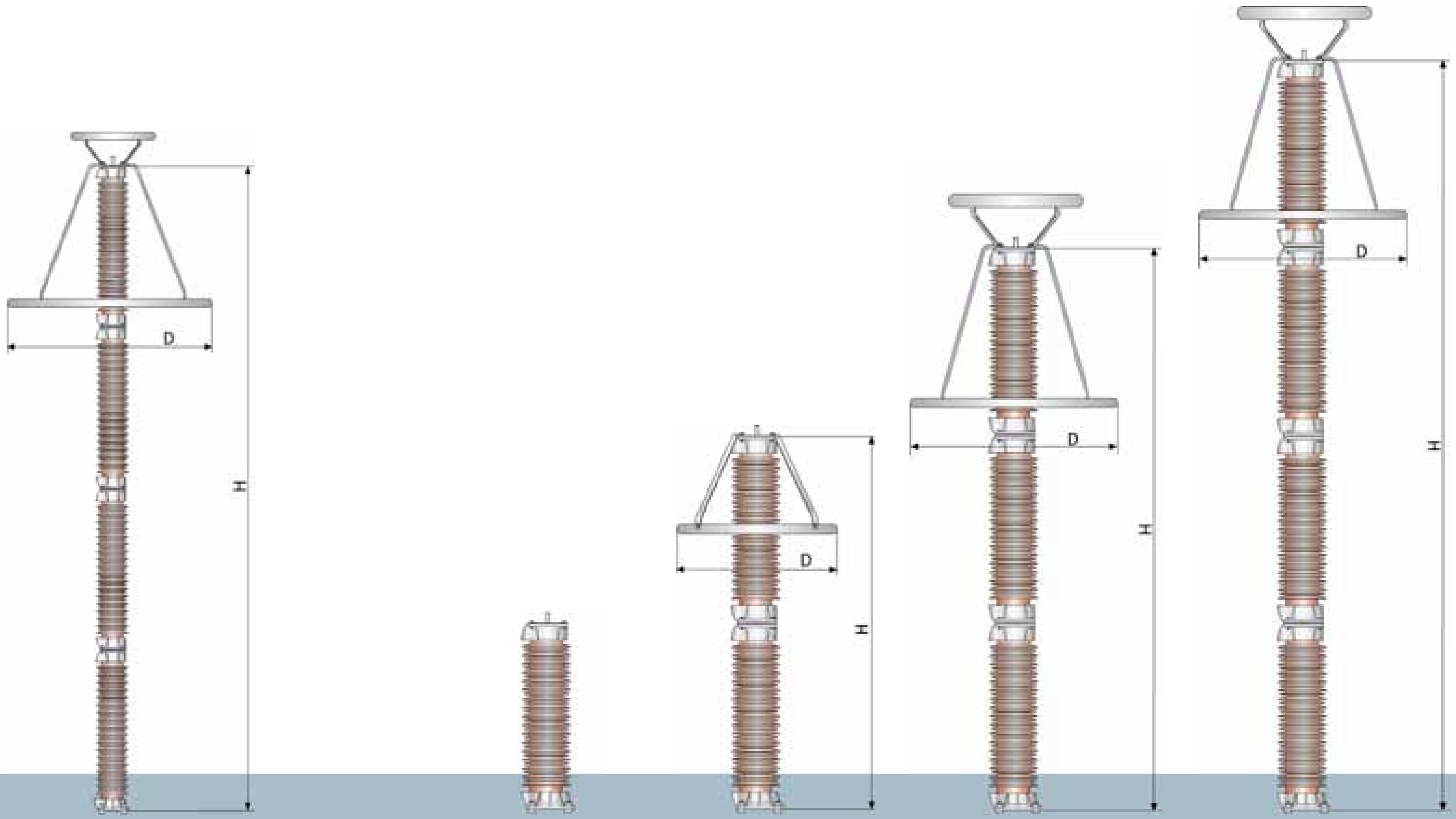
DIN and NEMA flat terminal



Bolt terminal



3 mounting holes bolt circle 200 – 254 mm for insulated intstallation



3EP2 24

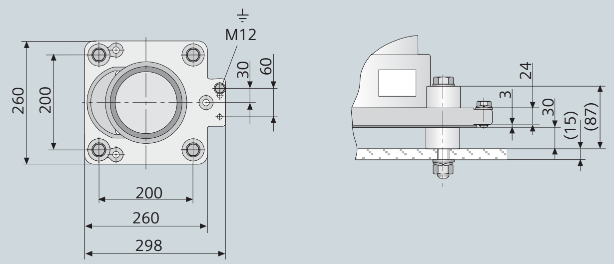
3EP3 31

3EP3 32

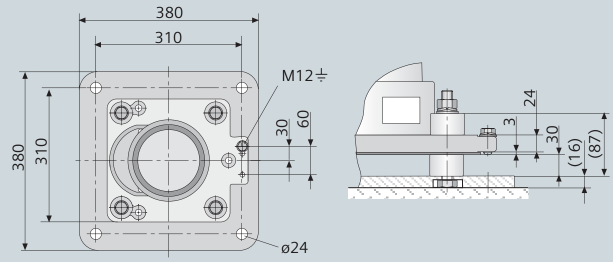
3EP3 33

3EP3 34

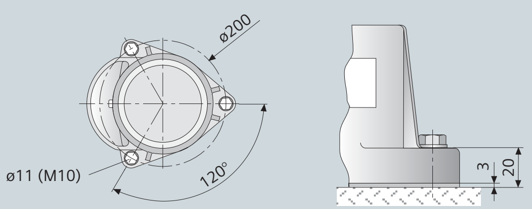
Installation and Grounding 3EP4



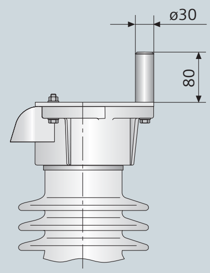
4 mounting holes 200 x 200 mm for insulated installation



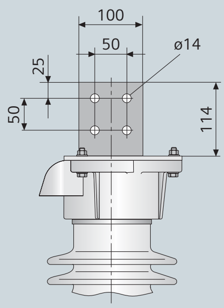
4 mounting holes 310 x 310 mm for insulated installation



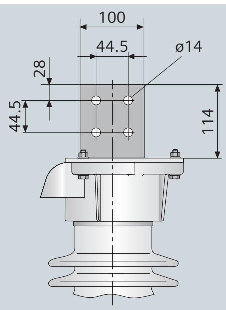
3 mounting holes bolt circle 200 mm for directly grounded intstallation



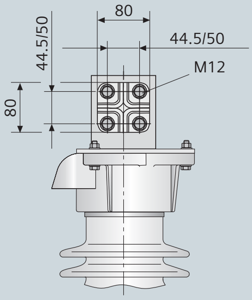
Bolt terminal



DIN flat terminal



NEMA flat terminal



Additional cable clamp for flat terminal

Control Devices for Surge Arrester



Arrester condition indicator
The arrester condition indicator (ACI) shows the arrester status at a glance. Its easy-to-understand "traffic light" visualisation is based on a 3rd-harmonic-evaluation of the leakage current.

Order number: 3EX5070



Control spark gap
To estimate the current that flows through the surge arrester in case of an overvoltage and to count the surges

Order number: 3EX6040



Surge counter

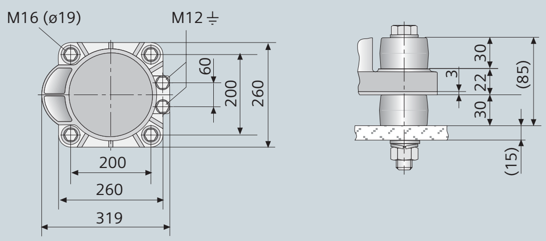
Order number: 3EX5030



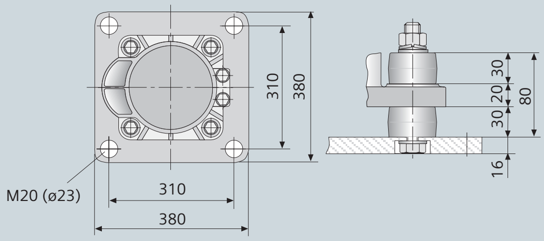
Surge counter with leakage current meter

Order number: 3EX5050

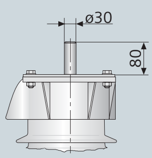
Installation and Grounding 3EP2



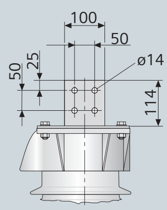
4 mounting holes 200 x 200 mm for insulated installation



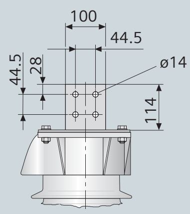
4 mounting holes 310 x 310 mm for insulated installation



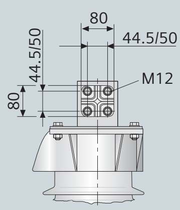
Bolt terminal



DIN flat terminal



NEMA flat terminal



Additional cable clamp for flat terminal





Sensor Up to 200 m Display



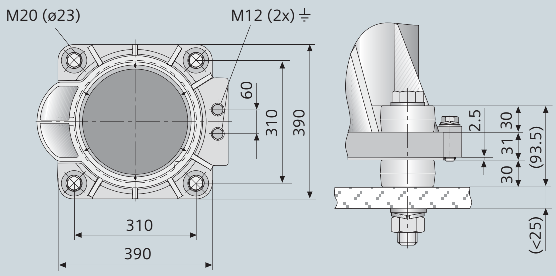
Surge counter
with leakage current meter remote indication

Order number: 3EX5060

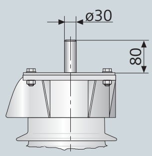
Order number: 3EX5062

LCM II
System for live condition check of metal oxide surge arresters

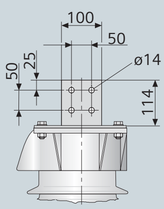
Installation and Grounding 3EP3



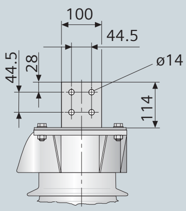
4 mounting holes 310 x 310 mm for insulated installation



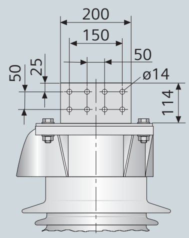
Bolt terminal



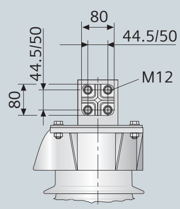
DIN flat terminal



NEMA flat terminal



Double flat terminal



Additional cable clamp
for flat terminal

Table 3

Order number	3	E	P	4	120	2	P	F	3	1	-	1	D	A	1
Porcelain housed surge arrester	**3**	**E**	**P**												
Surge arrester model															
Bending moment 2.0 kNm				5											
Bending moment 4.5 kNm				**4**											
Bending moment 12.5 kNm				2											
Bending moment 34 kNm				3											
Rated voltage in kV*					**120**										
Long duration current															
500 A						1									
850 A						**2**									
1200 A						3									
1600 A						4									
2100 A						5									
Application															
Phase surge arrester							**P**								
Neutral point surge arrester							S								
Tertiary winding surge arrester							T								
Housing size of single unit*								**F**							
Line discharge class															
LD 1									1						
LD 2									2						
LD 3									**3**						
LD 4									4						
LD 5									5						
Number of units															
1 unit										**1**					
2 units										2					
3 units										3					
4 units										4					
–											–				
Form of sheds and colour of porcelain															
Normal sheds, brown porcelain												**1**			
Alternating sheds, brown porcelain												2			
Normal sheds, grey porcelain												3			
Alternating sheds, grey porcelain												4			
High Voltage terminal															
Metal plate (connection with cable eye)													A		
Bolt 30 mm diameter, 70 mm long stainless steel													B		
Bolt 30 mm diameter, 70 mm long hot-dip galvanized steel													C		
Bolt 30 mm diameter, 80 mm long stainless steel													**D**		
Bolt 30 mm diameter, 100 mm long stainless steel													E		
Bolt 36 mm diameter, 80 mm long stainless steel													F		
Bolt 40 mm diameter, 80 mm long stainless steel													G		
Bolt 40 mm diameter, 100 mm long stainless steel													H		
Bolt 40 mm diameter, 120 mm long stainless steel													J		
DIN Flat 100 mm x 100 mm hot-dip galvanized steel													K		
DIN Flat 100 mm x 100 mm hot-dip galvanized steel, 20 mm thick													L		
DIN Flat 200 mm x 100 mm hot-dip galvanized steel													M		
NEMA Flat 100 mm x 100 mm hot-dip galvanized steel													N		
NEMA Flat 100 mm x 100 mm copper													S		
NEMA Flat 100 mm x 100 mm aluminum													U		
Name plate															
German/English (standard)														**A**	
French														B	
Czech														C	
Slovene														D	
Russian														E	
Spanish														F	
Portuguese														G	
ANSI														H	
Brazil														T	
Mounting															
grounded															0
Insulated (standard)															**1**
4 hole, insulated, 200 mm x 200 mm, M16															2
4 hole, insulated, 310 mm x 310 mm, M20															3

The top row in table 3 shows an example of the build-up of our order numbers.

* These items are customer specific variables.

Siemens AG
Power Transmission and Distribution
High Voltage Division (PTD H51)
Nonnendammallee 104
13629 Berlin
Germany

www.siemens.com/arrester-download

Please contact us at:
Phone: +49 (30) 3 86-33 222
E-mail: arrester@siemens.de

Order No. E50001-U113-A303-V2-7600
Printed in Germany
Dispo 30000
TH 263-070013 102018 PA 01071.0